

Application No.: 10/619,593
Amendments dated September 7, 2005
Response

REMARKS

By the paper mailed June 7, 2005, Claims 5, 8, 9, 11-13 and 16-20 were rejected under 35 U.S.C. §112, second paragraph. By this amendment claims 5, 8, 9, 11, 12, 13 and 16 through 20 have been cancelled. Subparagraph (f) of claim 11 has been amended to correct the antecedent basis problem noted by the Examiner, and, as amended is in full compliance with 35 U.S.C. §112.

Claims 1 through 10 were rejected under 35 U.S.C. §102(b) as being anticipated by Tankovich *et al.* Reconsideration of this rejection is respectfully requested for the reasons which follow:

Claims 11 through 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tankovich *et al.* For reasons presently to be described, reconsideration of the rejection of these claims is also respectfully requested.

Claims 16 through 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tankovich *et al.*, in combination with Reed. Claims 16 through 20 have been cancelled.

Before discussing the amendments made to the claims, a brief review of the thrust of the present invention would perhaps be helpful. As pointed out on pages 6 and 7 of the Specification as filed, the novel apparatus of the present invention

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includes an optical crystal which when pumped will produce uniquely structured pulses of laser light. More particularly, each pulse has a first portion of a first duration and a first wavelength and a second portion for the second duration and a second wavelength. In accordance with the method of the invention, the first portion of the pulse is directed toward a selected target area for a first period of time in a manner to raise the temperature of the lower portion of the human tissue located within the target area sufficiently to elicit a heating response that will accomplish hair reduction. At the end of the first period of time, the second portion of the pulse of laser light is directed toward the target area for a second period of time in order to take advantage of the first portion of the pulse of laser light and raise the temperature of the upper portion of the tissue located within the target area sufficiently to elicit a heating response that will rejuvenate the skin located within the target area.

In further describing the method of the invention it is stated on Page 13 of the Specification that effective hair reduction can be accomplished by irradiating the tissue with laser light at the 1078 nm wavelength, while at the same time cooling the epidermis. Since it takes a significant length of time for the volume of the tissue heated by the 1078 nm wavelength radiation to relax, it is possible in accordance with one form of the method of the present invention, to irradiate the

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tissue during this relaxation period with the laser light at the 1340 nm wavelength in a manner to preserve the earlier tissue energization that resulted from the laser light at the 1078 nm wavelength. This second irradiation step raises the temperature of the upper dermis to a desired level, while safely interacting with the epidermis. Additionally, because of the time delay in irradiating the tissue with the 1340 nm wavelength radiation, the epidermis, which was heated by the 1078 nm wavelength radiation, is permitted to controllably cool down.

By this response, claims 1 and 6 have been amended in a manner to more clearly define the novel method of the invention. More particularly, these claims have been amended to specifically define the optical crystal used in accomplishing the method of the invention as being a Nd:Yag crystal. Additionally, the claims have been further amended to more specifically include the step of determining the period of relaxation of the human tissue following the exposure thereof to the first portion of the pulse of laser light and then, within this period, directing the second portion of the pulse of lighting toward the target area.

Applicant's novel method as now defined in the amended claims is nowhere described or remotely suggested by Tankovich *et al.* Tankovich *et al.*, describes a laser system in which the gain medium is an excited YAP:Nd crystal. As set forth in column 1, starting at line 42, Tankovich *et al* states "The present invention

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provides a laser system in which the gain medium is an excited YAP:Nd crystal. The system is configured so that the crystal produces a twin laser beam comprising wavelengths at both 1079 nm and 1341 nm with substantial intensities at each wavelength.” Continuing, Tankovich *et al.*, states at Line 55 “The Nd:YAG laser system is unable to produce simultaneously 1064 nm and 1320 nm at substantial intensities at both wavelengths.” In light of the foregoing it seems clear that Tankovich *et al.*, in fact clearly teaches away from applicant’s method as now distinctly claimed.

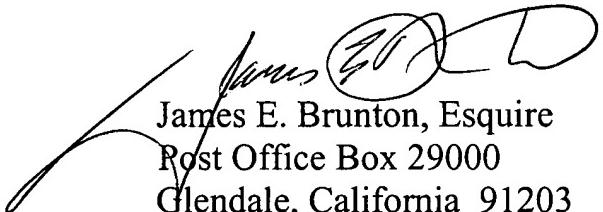
It is well known by those skilled in the art that with the 1064 nm wavelength, a practitioner can achieve a high degree of penetration and depth with minimal energy for epilation. The competition between absorption in melanin and penetration into deeper skin layers is small due to very low absorption of Nd:YAG light in melanin. This high penetration/low absorption of the epidermis allows successful epilation without epidermal damage even in darker skin types. This long wavelength penetration also yields better results in areas such as the bikini area where the follicle may be 4 mm or greater in depth. Because of low absorption coefficient of the epidermis at 1064 nm, temperature rise of the skin determined by thermal conductivity of the tissue and energy absorbed at deeper layers. Skin temperature rises to its peak within 10 to 20 ms after applying 1064

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nm pulse. This temperature rise is not sufficient to accomplish rejuvenation, but it helps to achieve it in the second phase. When skin temperature reaches its maximum due to the first portion of the pulse, 1320 nm portion of the pulse applied. This wavelength absorbs mostly in epidermis due to water absorption and raises skin temperature to the necessary level for rejuvenation.

For the foregoing reasons the application as amended is now believed to be in condition for allowance and such favorable action is respectfully requested.

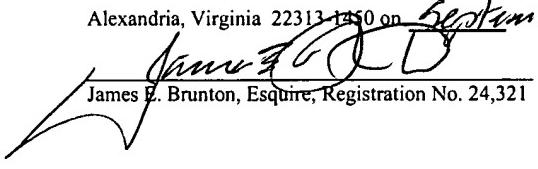
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Enclosures

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in the envelope addressed to Commissioner for Patents, Post Office Box 1450, Alexandria, Virginia 22313-1450 on *September 7, 2005*



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